

SUPPORT FOR THE AMENDMENTS

Claims 1, 18-26 and 28-32 are amended to use wording and structure consistent with U.S. patent law practice and to recite proper antecedent basis in the dependent claims.

Claim 1 is amended to include the description of Claim 27. Claim 27 is canceled.

No new matter is believed added to this application by entry of this amendment.

Upon entry of this amendment, Claims 1, 18-26 and 28-32 are active.

REMARKS/ARGUMENTS

The claimed invention is directed to coated transparent substrates and glazing structures which are used as optical filters or in architectural structures and transportation vehicles to allow light illumination to pass to the interior side while selectively reducing the amount of solar radiation passed. Coated transparent substrates having improved selectivity of light transmission coupled with reduced solar radiation while having attractive color reflectance are sought.

The claimed invention addresses this problem by providing the coated transparent substrate described in Claim 1 and claims dependent thereon and by providing the glazing described in Claim 29 and claims dependent thereon.

Applicants note that Claim 1 is herein amended to recite that the stacked layers of the coating comprise at least two infrared reflective layers arranged as indicated in the following diagram:

Last layer of dielectric material
Last absorbent layer
Last infrared reflective layer
Intermediate Layer
First infrared reflective layer
First absorbent layer
First layer of dielectric material
Transparent substrate = clear soda-lime glass

No such coated transparent substrate is disclosed or suggested by the references cited by the Office in the Official Action of December 11, 2008.

The rejection of Claims 1 and 18-32 under 35 U.S.C. 102(b) over Coustet et al. (WO-02/48065 equivalent to US 2005/0123772) is respectfully traversed.

Coustet describes a glazing having a transparent substrate coated with a stack of layers which are arranged to alternate dielectric layers and functional layers. A visible light absorbent layer is inserted between two layers of dielectric material (Abstract). Each functional layer is placed between two dielectric coatings. In addition a layer of material which absorbs in the visible is inserted between two layers of dielectric material [0013].

Coustet describes in [0028] that:

According to a preferred variant, the stack comprises two silver-based functional layers with three coatings, and the layer absorbent in the visible is inserted into the "intermediate" coating, that is to say that placed between the two functional layers. It has been found that it is in this configuration that the absorbent layer appears to be the most stabilized/isolated and the appearance in external reflection of the glazing is best. . .

Applicants respectfully submit that Coustet does not suggest or describe the layer sequence according to the claimed invention. A comparison of the reference layer sequence and the claimed invention sequence is shown below.

Claimed invention	Coustet
Last layer of dielectric material	Dielectric layer
Last absorbent layer	Infrared reflective layer
Last infrared reflective layer	Dielectric layer
Intermediate layer	Absorbent layer
First infrared reflective layer	Dielectric layer
First absorbent layer	Infrared reflective layer
First layer of dielectric material	Dielectric layer
Transparent substrate	Transparent substrate

As described above and as indicated in the above chart, Coustet requires each functional layer to be “sandwiched” between dielectric layers and describes a preferred configuration where the absorbent layer is between the two infrared reflective layers. In contrast, in the layer sequence according to the claimed invention, the first absorbent layer is directly beneath the first infrared reflective layer and the last absorbent layer is directly above the last infrared absorbing layer. No dielectric layer is present between either absorbent layer and the adjacent infrared reflective layer in the claimed invention. However, such a dielectric intermittent layer is required by Coustet.

Moreover, Applicants respectfully submit that Coustet cannot disclose a coated 6 mm clear soda-lime glass which has a light absorption value in the range of 35-67%. The maximum value described by the reference is given in example 5a prior to the thermal treatment. The value of light transmission is 49.9% and the value of external light reflection is 16.2%. Because the total of transmission, reflection and absorption is 100%, the absorption of this example is at maximum 34.4%, which is not in the range of the claimed invention.

Applicants respectfully call the Examiner’s attention to *In re Arkley*, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972) which states:

“[R]ejections under 35 U.S.C. 102 are proper only when the claimed subject matter is identically disclosed or described in “the prior art.” Thus for the instant rejection under 35 U.S.C. [102(b)] to have been proper, the . . . reference must clearly and unequivocally disclose the claimed [subject matter] or direct those skilled in the art to the [subject matter] . . .”

As Applicants have shown in the foregoing, Coustet does not disclose or suggest the stack layer sequence or the light absorption according to the claimed invention and therefore does not meet the Arkley requirement for anticipation. Accordingly, Applicants respectfully submit that the cited reference can neither anticipate nor render the claimed invention

obvious and withdrawal of the rejection of Claims 1 and 18-32 under 35 U.S.C. 102(b) over Coustet is respectfully requested.

The rejection of Claims 1, 18-21, 26-27 and 29-32 under 35 U.S.C. 102(e) over Decroupet (U.S. 2004/0147185) is respectfully traversed.

According to Claim 1 and Example 1 Decroupet describes a solar control panel having a coating with the sequence of layers as shown in the following chart.

Claimed invention	Decroupet
	Third antireflective layer
Last layer of dielectric material	Second barrier layer
Last absorbent layer	Second infrared reflecting layer
Last infrared reflective layer	Light absorbing layer
Intermediate layer	Second antireflective layer
First infrared reflective layer	First barrier layer
First absorbent layer	First infrared reflecting layer
First layer of dielectric material	First anti-reflective layer
Transparent substrate	Glazing panel

As indicated in the chart, Decroupet does not disclose or suggest the specific layer sequence according to the claimed invention wherein a first light absorbent layer is directly beneath the first infrared reflecting layer and a second light absorbent layer is directly above the last infrared reflecting layer.

In addition, this reference does not disclose a coated 6 mm clear soda-lime glass which has a light absorption value in the range of 35-67%. The maximum value described by the reference is given in example 4. The value of light transmission is 56% and the value of light reflection is 11% [0086]. Therefore, as described above, the absorption of this example is at maximum 33%, which is not in the range of the claimed invention.

For all the above reasons, Applicants respectfully submit that the cited reference neither discloses nor suggests the coated transparent substrate according to Claim 1 and therefore, cannot anticipate or render the claimed invention obvious. Accordingly,

withdrawal of the rejection of Claims 1, 18-21, 26-27 and 29-32 under 35 U.S.C. 102(e) over Decroupet is respectfully requested.

The rejection of Claims 22-25 under 35 U.S.C. 103(a) over Decroupet and further in view of Isozaki et al. (U.S. 4,888,210) is respectfully traversed.

Claims 22-25 directly or indirectly depend from Claim 1 and therefore include all the description of Claim 1. The deficiencies of the primary reference with respect to Claim 1 and claims depending therefrom are described above.

The Office has acknowledged that Decroupet does not specify soda-lime glass as the transparent substrate (Official Action dated December 11, 2008, page 6, lines 10-11) as cites Isozaki to show soda-lime glass.

Isozaki describes a method for making a transparent conductive film wherein a combination of an indium compound and a tin compound is applied to a substrate (Abstract). Nowhere does this reference disclose, suggest or provide motivation that would have led one of ordinary skill in the art, at the time of the claimed invention, to obtain the invention as presently claimed. Therefore, Applicants respectfully submit that the secondary reference does not cure the deficiencies of Decroupet and the cited combination of references cannot render the claimed invention obvious. Withdrawal of the rejection of Claims 22-25 under 35 U.S.C. 103(a) over Decroupet and further in view of Isozaki is respectfully requested.

The rejection of Claims 1 and 18-32 under 35 U.S.C. 112, second paragraph is believed obviated by appropriate amendment. Claims 1, 18 and 22 are herein amended to more clearly describe the claimed invention and to use proper antecedent reference.


Applicants note that the width of the clear glass affects the light absorption and reflected color and therefore the description specifies the width of the clear soda-lime glass as 6 mm. In view of the amendments herein, withdrawal of the rejection of Claims 1 and 18-32 under 35 U.S.C. 112, second paragraph is respectfully requested.

The objection to the Abstract of the Disclosure is believed obviated by the amendments made herein. The abstract is herein amended according to MPEP § 608.01(b).

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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ABSTRACT (Marked-up copy)

~~The present invention relates to coated substrates with a very low solar factor, in particular transparent substrates coated with a stack of layers comprising one or more layers of metal, and comprising, in succession starting from the substrate, at least:~~

~~a first layer of dielectric material,~~

~~a first absorbent layer,~~

~~an infrared reflective layer,~~

~~a second absorbent layer,~~

~~a last layer of dielectric material,~~

~~the thickness and nature of the layers being selected such that the total light absorption of the coated substrate is higher than or equal to 35% when the substrate is a 6 mm clear soda lime glass.~~

~~Such coated substrates are used, for example, as glazing units for buildings or vehicles, in laminated structures or as optical filters.~~

A transparent soda-lime glass substrate coated with a stack of layers including at least two infrared reflecting layers, each being directly adjacent to two light absorbent layers is provided. The coated substrate has a light absorption value between 35 and 67% and colorimetric indices of reflected color of a* between 0 and -10 and b* between 0 and -20. Glazing units containing the coated transparent soda-lime glass substrate are also provided.